

## TRIPLE RUDDERS

### Improve Steering Capability for Safe and Quick Maneuvers



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#### **NAUTICAN TRIPLE RUDDERS IMPROVE STEERING FOR OCEAN-GOING TUGS, INCLUDING ARTICULATED TUG BARGES (ATB)**

When Island Tug and Barge of Vancouver, BC, upgraded its 136-foot tug, the *Island Monarch*, they installed two Nautican high-efficiency Triple Rudders. With this upgrade, the offshore tug became the company's first articulated pin tug. The retrofit matched the *Island Monarch* with the *Island Trader*, a 368-foot, 65,000-barrel fuel barge, creating an articulated tug/ barge (ATB) unit.

In one of her first voyages after the installation of the rudders, the *Island Monarch* was sent to retrieve the *Island Trader* from China and push the barge across the Pacific to Vancouver, BC. In the process, the *Island Trader/Island Monarch* became the first Intercon ATB to cross the Pacific Ocean.

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*Nautican Triple Rudders greatly improve the maneuverability of vessels with nozzles. Single rudder systems can stall easily and cause a reduction in thrust, while many multi-blade systems can choke off the water flow through the nozzle.*

The difference in the Nautican Triple Rudder is that it uses a differential linkage, a unique geometry, high aspect ratio foils and the cascade effect to create higher lift forces with less drag. The entire propeller outflow is deflected up to 60 degrees to the side without the loss of thrust or loading of the engine.

This deflection makes it possible for even large vessels and barge trains to make tight turns. In trials rudder side force is measured to be 74 percent of the bollard pull – a 34 percent increase over a flap (Becker) rudder system.

In addition, Nautican Triple Rudders have low torque requirement, use a single steering gear and take up very little space, allowing location of the propeller further aft and leaving more space for cargo or living space. Rudders are delivered with all three blades and all pintle bearings assembled and aligned.

In applications where two separate steering gears are used on a twin-screw vessel, the Triple Rudder enables the vessel to “walk” sideways.

Nautican Triple Rudders are part of the Nautican Integrated Propulsion Unit but can also be added onto existing nozzle applications. The rudder system is intended for vessels that tow, push, ship berth and other demanding functions.

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#### **REQUEST AN OPERATIONAL ANALYSIS**

We are happy to partner with you to help you determine the best solution for optimizing performance and reducing fuel consumption. By analyzing your fleet's operational needs, we can help you identify vessels that are the best candidates and assist you in determining the return on investment. Please fill out a form at <http://nautican.com/operational-analysis/> for each vessel you would like us to analyze.

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